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# THE FARM INDEX

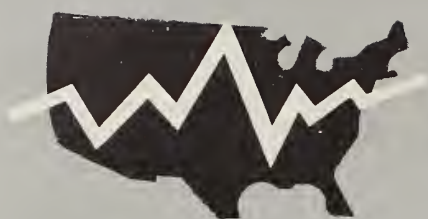
ECONOMIC RESEARCH SERVICE / U.S. DEPARTMENT OF AGRICULTURE / MARCH 1966

COUNTRY  
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GET "A"  
FOR  
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# economic trends

ITEM	UNIT OR BASE PERIOD	'57-'59 AVERAGE	1965				1966
			YEAR	JANUARY	NOVEMBER	DECEMBER	JANUARY
<b>Prices:</b>							
Prices received by farmers	1910-14 = 100	242	248	236	248	259	263
Crops	1910-14 = 100	223	232	234	218	223	228
Livestock and products	1910-14 = 100	258	261	237	274	289	293
Prices paid, interest, taxes and wage rates	1910-14 = 100	293	321	317	322	324	327
Family living items	1910-14 = 100	286	306	303	307	309	309
Production items	1910-14 = 100	262	276	272	276	278	281
Parity ratio		83	77	74	77	80	80
Wholesale prices, all commodities	1957-59 = 100	—	102.5	101.0	103.5	104.1	104.6
Commodities other than farm and food	1957-59 = 100	—	102.5	101.9	103.2	103.2	103.5
Farm products	1957-59 = 100	—	98.4	93.0	100.3	103.0	104.4
Food, processed	1957-59 = 100	—	105.1	102.2	107.6	109.4	110.2
Consumer price index, all items	1957-59 = 100	—	109.9	108.9	110.6	111.0	—
Food	1957-59 = 100	—	108.8	106.6	109.7	110.6	—
<b>Farm Food Market Basket: <sup>1</sup></b>							
Retail cost	Dollars	983	1,042	1,015	1,048	1,063	—
Farm value	Dollars	388	409	381	415	441	—
Farm-retail spread	Dollars	595	633	634	633	622	—
Farmers' share of retail cost	Per cent	39	39	38	40	41	—
<b>Farm Income:</b>							
Volume of farm marketings	1957-59 = 100	—	118	124	160	132	130
Cash receipts from farm marketings	Million dollars	32,247	38,930	3,198	4,287	3,698	3,637
Crops	Million dollars	13,766	17,144	1,578	2,208	1,773	1,723
Livestock and products	Million dollars	18,481	21,786	1,620	2,079	1,925	1,914
Realized gross income <sup>2</sup>	Billion dollars	—	44.4	—	—	45.5	—
Farm production expenses <sup>2</sup>	Billion dollars	—	30.3	—	—	31.1	—
Realized net income <sup>2</sup>	Billion dollars	—	14.1	—	—	14.4	—
<b>Agricultural Trade:</b>							
Agricultural exports	Million dollars	4,105	6,229 <sup>3</sup>	210	652	648	—
Agricultural imports	Million dollars	3,977	4,088 <sup>3</sup>	175	399	428	—
<b>Land Values:</b>							
Average value per acre	1957-59 = 100	—	139	—	145	—	—
Total value of farm real estate	Billion dollars	—	159.4	—	165.4	—	—
<b>Gross National Product <sup>2</sup></b>							
Consumption <sup>2</sup>	Billion dollars	457.3	675.6	—	—	694.6	—
Investment <sup>2</sup>	Billion dollars	294.2	428.5	—	—	440.1	—
Government expenditures <sup>2</sup>	Billion dollars	68.0	104.5	—	—	107.5	—
Net exports <sup>2</sup>	Billion dollars	92.4	135.0	—	—	139.6	—
<b>Income and Spending: <sup>4</sup></b>							
Personal income, annual rate	Billion dollars	365.3	530.7	515.4	546.1	550.9	551.6
Total retail sales, monthly rate	Million dollars	17,105	23,613	21,661	24,640	25,130	24,855
Retail sales of food group, monthly rate	Million dollars	4,159	5,526	5,258	5,785	6,038	—
<b>Employment and Wages: <sup>4</sup></b>							
Total civilian employment	Millions	64.9	72.2	71.3	72.9	73.4	73.7
Agricultural	Millions	6.0	4.6	4.5	4.3	4.5	4.4
Rate of unemployment	Per cent	5.5	4.6	4.8	4.2	4.1	4.0
Workweek in manufacturing	Hours	39.8	41.1	41.2	41.4	41.4	41.4
Hourly earnings in manufacturing, unadjusted	Dollars	2.12	2.61	2.58	2.65	2.66	2.67
<b>Industrial Production <sup>4</sup></b>	1957-59 = 100	—	143	139	146	149	150
<b>Manufacturers' Shipments and Inventories: <sup>4</sup></b>							
Total shipments, monthly rate	Million dollars	28,745	40,345	38,885	41,403	42,380	—
Total inventories, book value end of month	Million dollars	51,549	67,891	63,213	67,192	67,891	—
Total new orders, monthly rate	Million dollars	28,365	41,155	39,704	42,234	43,655	—

<sup>1</sup> Average annual quantities of farm food products purchased by urban wage-earner and clerical-worker households (including those of single workers living alone) in 1960-61—estimated monthly. <sup>2</sup> Annual rates seasonally adjusted fourth quarter. <sup>3</sup> Preliminary. <sup>4</sup> Seasonally adjusted.

Sources: U.S. Dept. of Agriculture (Farm Income Situation, Marketing and Transportation Situation, Agricultural Prices, Foreign Agricultural Trade and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Industry Survey, Business News Reports, Advance Retail Sales Report and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force and Wholesale Price Index).



# THE AGRICULTURAL OUTLOOK

The outlook continues optimistic that 1966 will be another year of U.S. economic expansion—the sixth in a row. All major sources of demand are expected to continue strong and increases in output, employment and income probably will approximate last year's relatively large gains.

The new year for agriculture began with a generally improved supply/demand balance, even though supplies were augmented by a record 1965 crop. Farm product prices averaged higher with the strengthening in livestock prices. Farm incomes were greatly improved and a further gain is expected this year.

Prices of most livestock products are expected to continue strong through much of 1966 as meat supplies continue relatively tight. Although poultry supplies will be larger, expanding domestic demand likely will sustain meat animal prices. By the last quarter of 1966, however, per capita meat supplies are expected to increase appreciably if pork production turns up later this year as expected.

There have been increases in wheat, feed grain, soybean and soybean product prices in recent months. However, crop prices averaged below a year earlier in January, mainly because of lower average prices for cotton and some citrus crops.

Export prospects for U.S. agricultural products have become more favorable in recent months. During July-December, agricultural exports totaled some 4 per cent above a year earlier and in coming months they are expected to continue higher than a year earlier. Expanding export markets for grains, soybeans and soybean products will more than offset the prospective decline in cotton exports from the 1964/65 marketing year.

Expanding economic activity and rising incomes in other industrialized nations, particularly Japan, Canada and the nations of Western

Europe, have increased the demand for livestock products and for food and fiber products. Major commercial exports apparently reflect to some extent international tensions. Relief needs in India because of the food crisis brought by drought have increased U.S. commitments under Food-for-Peace programs.

## Commodity Highlights

**Poultry** production has been expanding rapidly since mid-1965. Further large gains are in prospect this year. Placements of broiler chicks in 23 states in the 13 weeks ended February 12 were 13 per cent above a year earlier. Most of these will be marketed before the end of the first quarter. Turkey hatcheries in September 1965 through January 1966 turned out 4 million more poults than in the like 1964/65 period. Turkey growers in January indicated plans to raise a record crop of 112 million birds in 1966, compared with 105 million in 1965 and the previous record of 108 million in 1961.

The broiler and turkey industries are taking steps leading to stepped-up output in the second half of 1966. Increased placements of pullet chicks for hatchery supply flocks in the past three months, together with placements in earlier months, indicate that next August's broiler breeder flock will be up about 8 per cent from 1965. The turkey breeder flock on January 1 was 8 per cent larger than a year earlier.

Demand for poultry is likely to be strong throughout 1966, especially during the first half, as incomes rise and red meat supplies continue relatively short. By the second half, poultry will face stiffening competition from increasing pork supplies.

**Egg** supplies available to civilians are likely to remain tight through early spring, compared with a year earlier, because of smaller production, increased use of eggs for hatching and some rise in military procurement.

The 1965/66 **feed grain** supply of 217 million tons is 9 million tons above the year before but 5 million tons below average. Disappearance probably will about equal the record 1965 crop of 161 million tons, leaving a carryover into the 1966/67 marketing year near last year's level of 56 million tons. Domestic consumption may be up about 4 million tons, while exports are expected to be about 5 million above the 21.6 million shipped in 1964/65.

Total utilization of **corn** in 1965/66 is expected to nearly equal the 1965 crop, which would leave a carryover next October 1 about the same as the 1.2 billion bushels of a year earlier. Exports may be 100 million bushels above last year's record level of 570 million.

The total **wheat** supply for the year ending June 30 is estimated at 2,147 million bushels. Through January, total exports of wheat and flour were about 40 million bushels above the 420 million exported during the same period in 1964/65. The rate of exports may continue to increase in coming months, since expanded exports to India under P.L. 480 have been authorized.

Wheat utilization (domestic use plus exports) in the 1965/66 marketing year is expected to exceed the 1965 crop, resulting in a further decline in the carryover of wheat, possibly to 600-650 million bushels by next July.

Because of the heavy demand, prices of the major classes of wheat at principal markets have remained well above the applicable price support loan levels.

U.S. mill consumption of **cotton** during the current marketing year (August-July) is expected to total about 9½ million bales (9.3 million bales of upland cotton). This is up from the 9.2 million bales used in 1964/65 and the highest level since 1952/53. Larger consumption this year is resulting from the expansion in general economic activity, the high level of consumer demand for textiles and the increas-

ing use of textiles by U.S. military forces.

U.S. cotton exports during the 1965/66 crop year are expected to total about 3½ million bales, down from 4.1 million in 1964/65. This decline primarily reflects a working down of cotton stocks in foreign Free World countries as they anticipate lower world market prices during the 1966/67 crop year.

U.S. carryover of all kinds of cotton on August 1 is expected to reach a record 16½ million bales (16.3 million bales of upland cotton), more than 2 million bales above the 14.3-million-bale carryover last August 1. The previous record-high carryover was 14.5 million in 1956.

Supplies of fresh **oranges** and **grapefruit** during late winter and throughout the spring are expected to be adequate for the usual fresh market needs despite some freeze damage to Florida citrus crops in late January. Supplies of canned and frozen **citrus juices** probably will be even larger than seemed likely before the Florida freeze. This prospect arises from increased movement of "frosted" oranges to processors to minimize losses. Although prices increased somewhat immediately following the freeze because of supply uncertainties, they are expected to remain below year-earlier levels. But supplies of canned **deciduous fruits** are expected to continue lighter and prices generally higher than in the first half of 1965.

Supplies of fresh **vegetables** have been smaller this winter than last because of bad weather. Excessive rains and low temperatures in Texas and southern California curtailed harvests of such hardy crops as cabbage, carrots and lettuce, while late January freezes in Florida caused considerable damage to many of the more tender commodities. Barring further weather problems, a seasonal increase in harvest is likely in coming weeks. But at least through the winter, total marketings probably will remain below those of a year earlier.



## LAND: DOES COST OUTWEIGH RETURNS?

*Competition among farmers for the limited supply of available farmland is tending to bid up land prices. Strictly in terms of the value of what it will produce, land at its current high value sometimes can be over-priced.*



The rising cost of farmland is forcing many farmers into an economic bind. If they want to use such inputs as machinery and fertilizer efficiently, they've got to expand the size of their farms. But land is currently so expensive, it is often overpriced in terms of what it will actually return the farmer.

Recently economists in the Illinois Agricultural Experiment Station, in cooperation with ERS, weighed land prices against land productivity during 1949-59 for model grain, hog, dairy and beef farms in Illinois. The representative farms were constructed using actual farm data from enterprises in selected areas of Illinois.

With land prices during 1949-59 rising to a fairly high level, the economists assumed that very few farmers could afford to purchase land from previous savings. For most farmers, therefore, buying land involved a trip to some lending agency to arrange for a mortgage loan.

For the land to be a profitable purchase, the economists figured it would have to yield a market return sufficient for a farmer to (1) meet the interest payment on the land investment, (2) save for eventual debt-free ownership, (3) compensate him for the risks involved in acquiring long-term debt and (4) provide him with a good land management return.

The economists also estimated the marginal productivity of land and other inputs on the model farms. These estimates were then compared with the estimated market returns to land and other inputs during the decade.

The rise in land values during 1949-59 exceeded the rise in land productivity. Therefore, if the land input was to receive its estimated market return, a farmer would have to accept lower returns on his own labor and management inputs.

In other words, input for input, the land in the models which was valued at current premium prices

wouldn't actually be pulling its own weight. Its high cost would really be met by the sacrifice of some of the returns a farmer would normally expect to receive on his own labor and management. And since land prices have continued to climb since 1959, this situation is probably even more true for today's farmers.

Of course, if the future proved bright, the economists recognized that the farmers who acquired ownership of the land could possibly realize some capital gains if the land were ever sold (depending on future land values)—which would help compensate for their loss of profits.

On the other hand, if the land buyers at current high prices were ever in a position where they could not meet both the interest and amortization payments, then the landownership would shift back to the lending agency. And the farmers' sacrifice of their own labor and management returns would have been in vain. (1)



## 1964 Tax Levies on Farm Real Estate Rise in Every State Except Montana

Taxes levied on farm real estate in 1964 (the last year for which complete data are available) totaled slightly more than \$1.5 billion. This was 5.3 per cent higher than in 1963 and the twenty-second consecutive year during which levies rose.

However, market values of privately owned farmland rose somewhat faster than did levies, with the result that the effective rate of tax declined from \$1.03 per \$100 of full value in 1963 to \$1.02 in 1964.

On a per acre basis, 1964 taxes were up from 1963 in every state except Montana—which showed a 1.5 per cent decrease. The biggest rise in levies, 18 per cent, occurred in Hawaii. But California, Oregon, Maryland and Massachusetts all had increases of more than 10 per cent. In 18 states the increase was from 5 to 10 per cent and in 27 states it was less than 5 per cent.

As in most recent years, 1964 taxes per acre of farmland averaged highest in New Jersey at \$12.50; lowest in New Mexico at 18 cents. (2)

## Higher Yields Per Acre Pushed U.S. Rice Output to Record High in '65

U.S. rice is continuing its 3-year, 3-way trend: larger output matched by rising exports and increased consumption.

The 1965 crop was a record 76.9 million hundredweight (cwt.), nearly 4 million above the previous record set in 1964 and substantially above the 1958-62 average. This increase resulted almost entirely from higher yields, averaging 4,291 pounds per acre, almost 200 pounds above 1964.

The United States had a rice supply at the beginning this year of 85.0 million cwt. This included a 7.7 million cwt. carryover on

August 1, 1965.

But while supplies are growing, so are consumption and export demands. Domestic requirements are increasing as population and per capita consumption both increase.

Exports are expected to exceed the record 42.5 million cwt. of 1964/65, due mainly to larger commercial shipments. In 1964/65 these totaled 25 million cwt., continuing the sharp uptrend of recent years.

Because of demand arising out of war and drought in Asia, the U.S. rice acreage allotment has been increased 10 per cent to 2 million acres for 1966.

As in the past, U.S. rice producers' incomes will be protected by the price support program. The 1966 crop will be supported at a national average of \$4.50 per cwt. (21)

## Federal Land Bank, FHA Loans Rise Sharply in First Six Months of '65

During the first half of 1965, farmers borrowed nearly one-fourth more money from three major farm mortgage lenders than in the same 1964 period.

All told, the volume of farm mortgage loans closed by the federal land banks, Farmers Home Administration (direct loans) and 20 reporting life insurance companies amounted to \$1.3 billion during January-June 1965.

Loans made by the federal land banks and FHA were up sharply. Each of these lenders had a 39 per cent gain in volume over the same period in 1964. For FHA this was the largest first half increase since 1962, when loans rose 65 per cent from the first half of 1961.

For the reporting life insurance companies, however, there was a substantial slowdown in the rate of increase in new loans made. The volume of new loans rose only 6 per cent, which was the smallest increase for several years. (3)

## For \$5,000 Farm Income in Wiregrass Area: 105 Openland Acres Required

What's the smallest openland acreage on which a farmer of Alabama's Wiregrass area can hope to make as much as \$5,000 a year growing cotton and a few other crops?

ERS, in cooperation with the agricultural experiment station at Auburn University, took on this question recently. The study used linear programming to determine the openland requirements and the most profitable combination of enterprises to yield returns of \$5,000. Openland soils in the 12-county area lie on slopes of from 2 to 10 per cent. They are loamy sand and slightly acid. Average yearly rainfall in the area is 51 inches and the growing season is eight months long.

In the analysis, with land values averaging about \$105 an acre, with cotton priced at 31.2 cents per pound of lint and with cotton allotments held at the 1963 level, a farmer in this coastal plain area of Alabama would need at least 105 acres of openland to net \$5,000 annually.

Most profitable enterprises would be cotton to the allotment limit, oats, corn, hogs and beef cattle.

However, an increase in the value of land per acre would cause a big jump in the number of acres of openland required to yield the \$5,000 income. This is due mainly to interest charges in paying for the higher-value land. At \$210 per acre, it would take 192 acres to make that income.

Boosting the cotton allotment level by 15 per cent would cut the acreage requirement by about one acre. Lowering the cotton price from 31.2 cents to 26 cents per pound of lint would increase the acreage needed by seven acres. With cotton at 26 cents and hogs at \$16 a hundredweight, it would be more profitable to produce hogs than cotton. (4)



## Improved Technology, More Abundant Feeds Help Beef Up Beef Production

The beef industry has come a long way since the end of the war. And there's no reason why the progress and change won't continue for at least another decade.

The beef cow herd is expected to be more than 51 million head in 1975—57 per cent more than the 32,796,000 estimated for 1965 and nearly double what it was in 1960.

More abundant feeds and a more prosperous economy in general have played their part in developing the industry.

Because of new varieties, improved technology and the greater use of fertilizer, supplies of forage and grain available for feed have been generally abundant, relatively low-cost.

And more Americans have been satisfying their appetites for beef at an increasing rate. We averaged 100 pounds of beef per person in 1964; only 63 pounds in 1950. By 1975 the estimated 235 million population is expected to eat 110 pounds of beef on the average.

Both these factors have changed the geography of beef production. Beef cattle are increasing faster in the South than in the West.

Unlike the rest of the nation, the West has been facing a diminishing supply of forage, partially because of the trend to shift public lands from grazing. Such states as Montana, which depend heavily on public lands for forage, will probably raise fewer cows in 1975.

But the South has reasons of its own for increasing production of feeder cattle. The grazing season is longer. Land being retired from other uses is available for grazing. And better varieties of forage and grain are being produced.

Furthermore, the southern farmer is apt to find feeder cattle a profitable alternative use for

**ROTARY HOE:** Although a rotary hoe is a handy piece of equipment to have during brief periods of the year, its initial and per acre costs might make it desirable to rent it from an equipment dealer or share one with neighbors. Costs are figured by setting the current value and estimating depreciation, then adding the other usual fixed costs. The number of acres is divided into the total to get the cost per acre. Adding tractor charges to this figure produces the real cost of operating a rotary hoe—\$1.98 to \$2.76 an hour, depending on the size tractor used. (See August 1965 for estimates of tractor costs.)

Figures in the table are from a survey of wheat farmers in northeastern Colorado. (6)



Size in feet	21
Cost when new	\$626
Investment in 1960	\$344
Acres of use annually	185
Annual fixed costs:	
Depreciation <sup>1</sup>	\$20.12
Repairs	3.56
Shelter, insurance, taxes	6.36
Interest <sup>2</sup>	27.52
Total	\$57.56
Per acre	\$ .31
Size of tractor in bottoms	3, 4 or 5
Hours per acre	0.13, 0.12 or 0.11

<sup>1</sup> The cost when new minus 10 per cent—remainder divided by estimated years of use. <sup>2</sup> Eight per cent.

land formerly devoted to crops in surplus or other less profitable enterprises.

From studies made in 1962, the specialists estimate that two-fifths of the nation's beef cow numbers can be located in the Southern Plains and South Central States by 1975.

While feeder cattle are moving southward, fed cattle are moving westward. The migration has in part followed the westward drift of the human population.

Between 1950 and 1960, the 11 Western States increased beef production 48 per cent, compared with 39 per cent for the others.

And rate of population growth in these western states averaged 39 per cent, compared with 15 per cent for the rest of the nation in the same decade.

More and more beef is coming from feedlots located mostly in the West. The western lots have been getting feeder cattle from all regions and from neighboring Canada and Mexico.

The important gain is in cattle being shipped west from the Plains and Southern States. (5)

## Spring Pig Crop Increase Intended; Summer Slaughter Also Expected Up

More pork is on the way for the consumer.

Producers' breeding intentions on December 1 pointed to a 1966 spring pig crop of about 46 million head, up 7 per cent from 1965 but still 4 per cent below 1964. The 1965 pig crop totaled 81.6 million head, the smallest annual crop since 1953.

Hog slaughter during the winter and spring months is expected to continue substantially below year-earlier levels. Slaughter in the summer is likely to run above 1965 levels with further increases toward the end of the year. As a result, hog prices likely will weaken later in the year with a fourth quarter average below the high levels of this past fall.

As for cattle, the number on feed January 1 was up 5 per cent from a year earlier and cattle feeders reported intentions to market 4 per cent more cattle during January-March than in the same months last year. (7)



## FROM MAIZE TO HYBRID CORN



The corn that the first English settlers in America adopted from the Indians was probably a long, slender-stalked northern flint variety. It kept well and was prized as food by the Indians, but its yield was low.

Indians in the south-central part of the continent grew white southern-dent corn. It was a late-maturing variety with heavy stalks and soft kernels, but it gave a higher yield than the flint corn.

Haphazard mixtures of the flint and dent varieties probably occurred many times long before the idea of a hybrid corn evolved. The first definite record of mixing the two was in 1812. John Lorain, a farmer near Phillipsburg, Pa., demonstrated that crossing the flint and dent corns resulted in higher yield and improved quality.

Other farmers and breeders followed suit. The most famous of these early cross varieties was Reid's Yellow Dent, developed in 1846 by Robert Reid in Illinois. This corn eventually became the most widely grown variety in the Corn Belt and contributed valuable characteristics to modern hybrid seed.

As the years passed, a number of botanists, horticulturists, geneticists and the like built up a knowledge of hybridization and its effects on corn quality and yield. The real breakthrough came with the invention of the double cross in 1917. This was the basic technique used to develop modern hybrid corn and has been used commercially

ever since. In making a double cross, four inbred lines are used—A and B make one cross, C and D another. Then AB and CD are crossed and the hybrid ABCD is the result.

The first double cross hybrid to be produced commercially was the Burr-Leaming variety developed by the Connecticut Agricultural Experiment Station. In 1921 farmers paid \$8 a bushel for Burr-Leaming seed.

The second hybrid to be sold commercially was a single cross between one of the inbred Leaming strains and an inbred line developed by Henry A. Wallace of Iowa, later to become 11th Secretary of Agriculture. The first of this seed was sold in the spring of 1924 and called "Copper Cross." Two years later, Wallace joined with a few others in organizing the first seed company for the commercial production of hybrid corn.

As soon as hybrid seed was available in quantity, farmers adopted it at a rate matched by few, if any, other items of new technology. In 1933 only limited amounts of seed were available so only 1 per cent of the total acreage planted to corn was in hybrids. By 1938 hybrid acreage was at 15 per cent; by 1946, 69 per cent; and in 1960, 96 per cent. Today, nearly all corn grown in the U.S. is hybrid.

The change wrought by the adoption of hybrids is best expressed by the rise in corn yields—from an average of 23 bushels per acre in 1933 to 62 bushels in 1964. (8)

## Grazing Fees Are Special, Important Part of Ranching Costs in Far West

Public lands serve up about 18 per cent of the total feed units used by ranchers with grazing permits in the West.

The Bureau of Land Management and the Forest Service issued about 43,000 paid permits and leases to ranchers in the area for the 1960 grazing season.

The cost of these permits is an expense in the budgets of the

ranchers. A recent study indicates the potential impact of various levels of grazing fees on the net income of ranches in the area.

Grazing fees, like rent or the cost of feed, are a direct operating cost of running a ranch. Any increase in grazing fees is, in the short run, fully reflected in higher total operating costs, though the effect depends on the number of head grazed and the length of time federal ranges are used.

In 1960 grazing fees were 20

cents per animal unit month (AUM) for Bureau of Land Management ranges and averaged about 60 cents on Forest Service range.

For 69 representative cattle ranches analyzed in the study, the grazing fees averaged nearly 5 per cent of the total cash operating costs for the year. They averaged 3 per cent of operating costs on the 16 sheep ranches studied.

There is, of course, considerable variation among the ranches.



Grazing fees on cattle ranches varied from 1 to 20 per cent of total cash costs in 1960; they varied from less than 1 per cent to about 5 per cent on sheep ranches.

Higher grazing fees would take an immediate bite out of ranch income. If the 1960 grazing fees, for instance, were increased 20 cents, the average net income would drop from \$4,361 to \$4,105 on the cattle ranches, from \$5,946 to \$5,427 on the sheep ranches in the area.

The impact of such increases is sharpest on the large ranches in the Intermountain area, where ranchers depend heavily on the seasonal ranges, and in the southern portion of the region, where the animals are grazed yearlong. The reduction in net income associated with an increase of 20 cents per AUM in fees for ranches in these areas would amount to as much as \$1,699 for cattle ranches and \$3,137 for sheep ranches.

A reduction in permitted use of the range has much the same effect on ranch operations. In the short run, the rancher might respond to a 20 per cent reduction in permitted use by reducing his herd. To what degree and with what effect on his income, however, depends on the size of the original herd and the dependency on federal grazing land. The greatest reduction in herd size generally occurs when the permit is for yearlong use.

In the long run, ranch income might be supported through investments in such improvements as reseeding, fertilization, fencing and water development. Another way to meet the increased costs might be to enlarge the ranch over a period of years.

The study was a joint project of the Economic Research Service, Montana State University (Bozeman), Utah State University, the University of Arizona, the Forest Service and the Bureau of Land Management of the U.S. Department of the Interior. (9)

**SUGAR BEETS FOR CENTRAL ARIZONA:** Sugar beets are not now an important crop in central Arizona. But come this fall they could be. At that time, some 20,000 acres are slated to be seeded to the crop under special contract with a new sugar factory.

To give farmers in the area some guide as to how profitable beet production could be, economists in the Arizona Agricultural Experiment Station and ERS recently estimated potential local costs and returns based on data collected in the Imperial Valley of California and adapted to Arizona conditions.

The table shows only the added costs and added returns associated with beet production. Fixed costs (for land rental, real estate taxes, etc.) are not included because for most farmers they would be the same for each of the selected crops. Yields in central Arizona are assumed to average 20 tons of sugar beets per acre containing 15.75 per cent sugar. (10)

Item	Dollars per acre
<b>Costs:</b>	
Seed	4
Fertilizer <sup>1</sup>	20
Insecticides	14
Labor and machinery:	
Preparing seedbed, shaping beds and planting	13
Cultivating, side dressing and applying insecticides	10
Irrigating	12
Thinning and weeding	40
Custom harvesting	28
Custom hauling	31
Auto, pickup and miscellaneous	6
Supervision of labor <sup>2</sup>	7
Irrigation water, 5 acre feet	21
Production credit	6
<b>Total</b>	<b>212</b>
<b>Returns:</b>	
Sale of beets to factory <sup>3</sup>	224
Government payment <sup>4</sup>	45
Rental of beet top pasture	9
<b>Total</b>	<b>278</b>
<b>Net Income</b>	<b>66</b>

<sup>1</sup> Based on an average application of 125 pounds of nitrogen per acre in the form of dry fertilizer, plus 50 pounds of phosphorus on 75 per cent of the fields. <sup>2</sup> Does not include supervision of contract and custom work, which is included in the cost of those operations. <sup>3</sup> Based on a price of \$11.21 per ton for 20 tons of beets containing 15.75 per cent sugar. <sup>4</sup> Based on a payment of \$2.24 per ton.

## Analysis in Depth Can Help Farmers Slice the Costs, Find Extra Profits

For some time agricultural economists have been exploiting the capabilities of the electronic computer to analyze the variables of costs and returns.

Take one example worked out by specialists at Oklahoma State University in a cooperative project with the Economic Research Service.

The model farm has 358 acres of cropland with another 185 acres in upland pasture.

The farm yields a maximum net income (return to land and operator labor) of \$16,650 on a system based largely on cash crops—alfalfa and soybeans. The two crops cover all the bottomland in

the farm. Prices in the model are developed from 1958-62 averages.

The analysis for the cash-crop system shows that the cost of producing alfalfa could range from \$55.91 to \$65.76 an acre in the optimum plan on the less productive soil. So costs could rise another \$9.85 without calling for a change in the plan.

The same type of analysis also provides a price range for maximum profit. The market price for alfalfa, for example, could vary from \$20.42 to \$88.89 per ton without changing this optimum organization.

When such analysis is applied to all aspects of the farm enterprise the result can provide agriculture with a far more exact guide to full profits than has been available before. (11)



# COUNTRY SCHOOLS GET "A" FOR EFFORT



This nation of immigrants is still on the move. It's still a land of people who won't stay put.

From farm to city goes the stream and, less well publicized, from city to farm.

Between April 1963 and April 1964, for instance, about 816,000 persons moved from farm to non-farm areas. In the same period, about 283,000 persons went the other way.

The two-way aspect of this migration is one of the reasons rural and city life are becoming more alike. The similarity is reflected

in rural and urban educational opportunities and in the rapid improvement in school enrollments among rural children.

Traditionally, the man who leaves the farm for work in the city has had a higher education than the one who stayed behind, but a lower level of education than the city-born worker. The lack of education has been the single most important reason that the country boy does badly in the city.

Today, however, the little red schoolhouse—with its one room, one teacher for all the classes—is

becoming a thing of the past. Also, statewide standards for teachers as well as courses are helping raise the level of education in the country.

But the main improvement is that more country boys and girls are getting more years of education.

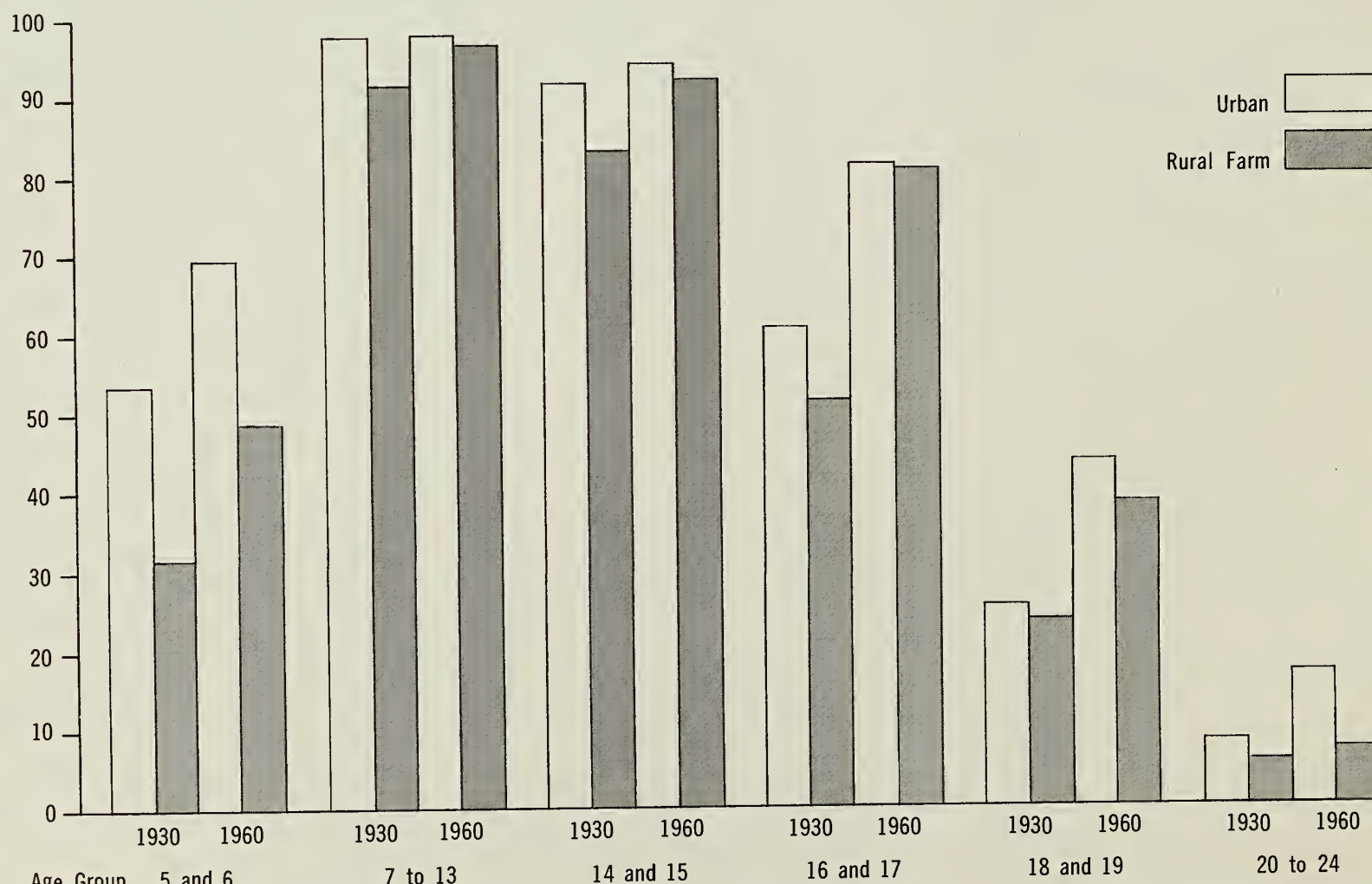
Between 1930 and 1960, the percentage of farm and rural youth in school steadily approached the city level for most age groups.

In 1930, for example, some 92 per cent of the 7- to 13-year-old farm children were enrolled in

**BETTER TOOLS FOR THEIR TRADES:** The rural population continues to migrate to the city. But, thanks to improved education, young people are better equipped to land a job in the city. The level of school enrollments for the farm population is not only higher today for different age groups, it is coming closer to the urban mark. The exception is for the 5- and

6-year-olds. Though enrollments for this group have improved, they still lag considerably behind city levels. The explanation lies in the less frequent availability and use of kindergarten. Figures for rural nonfarm children (not shown) tend to fall between those for farm and city children, though recent progress has not been so marked as for farm children.

Percentage of population enrolled in school by age group and by residence group 1930 and 1960.



U. S. DEPARTMENT OF AGRICULTURE

NEG. ERS 4239-66(1)

SOURCE: U.S. Census of Population



school. By 1960 the figure was 97 per cent—or about the same as the figure for city children both in 1930 and 1960.

Similarly, about 83 per cent of the 14- and 15-year-old farm children were in school in 1930; about 93 per cent were in 1960. For city children, the percentages went from 93 to 95.

However, the most important job of catching up took place in the age group paralleling the last two years of high school. Little over half the 16- and 17-year-old farm children were in school in 1930; by 1960, 82 per cent were. The 82 per cent figure was about the same as for the city children, though the proportion in 1930 had been about 60 per cent.

There has also been considerable improvement in school attendance in the earliest years. A scant third of the 5- and 6-year-olds on the farm—the kindergarten-age children—were in school in 1930; close to half were by 1960. However, well over half the 5- and 6-year-olds in the city were in school in 1930 and over two-thirds were by 1960. (12)

## Dollar Value of High School Diploma Is Greater for Whites Than Negroes

Stay in school, or go to work? Parents, school teachers, youth leaders—not to mention the popular press—are careful to impress the young with the financial as well as the social rewards of a high school education.

The figures are on the side of education. There is about a \$500 a year difference in income between a complete and incomplete high school education. And the difference averages \$1,000 or more between the man with a high school diploma and a worker who has never gone beyond grade school.

The higher the expected income, the greater the incentive to stay in school, of course. This, paradoxically, could be adding to the

problems of parents and teachers of Negro youth. Though a high school diploma is worth money to Negroes, as well as whites, it isn't worth as much.

In 1960 incomes averaged \$3,869 for the 25- to 34-year-old white male with a grade school education or less. A high school diploma was worth an additional \$1,399. And if he had gone through even one year of college, his income averaged \$2,083 a year greater, or \$5,952.

Education pays off for the Negro, too, but not as much. Comparable income figures for non-white men in the same group (over 90 per cent of whom were Negroes) were: \$2,350 with an eighth grade education or less; \$3,657 with a high school diploma; and \$4,220 after one year of college.

This problem has its beginnings in early youth. There has been vast improvement in education levels even in recent years. But a higher proportion of Negroes than whites still fail to graduate from high school.

In 1950 some 37 per cent of all white males between 16 and 24 had dropped out of high school; 62 per cent of all Negro males in the same age group had failed to graduate.

By 1960 the proportion had fallen to 26 per cent for the white group, 44 per cent for the Negro.

The averages, however, mask some regional differences as well as differences among groups. Worst off in the matter of education are Negroes living on southern farms.

Fifty-six per cent of all 19-year-old Negro boys living on southern farms in 1960 had left school before graduating. And another 20 per cent were still in school, but were so far behind that they would probably drop out before long. Thus, three out of four Negro farm boys in the South could be considered high school dropouts as recently as 1960. (13)

## For Lack of Education, Job Training, Dropouts Trailing Field in Job Race

Every youngster seeking his first job has at least one big handicap—no past work experience. This alone puts him at a disadvantage in today's labor market. But if he has other handicaps, too—such as lack of a basic education or no knowledge of available jobs or job training programs—finding and holding a job can be difficult.

Here are just a few statistics gathered by ERS on the problems of a young school dropout in the labor market today:

—Of the nearly 7 million young people between the ages of 16 and 21 who were out of school in 1965, about 3 million were dropouts.

—Nine dropouts out of every 10 reported no job training after leaving school; eight out of 10 reported they had never been counseled by a school official or by a public employment office about job training or the kind of work to look for. High school graduates, on the other hand, were about three times as likely to enter occupational training programs and nearly half reported receiving some occupational counseling.

—The unemployment rate for young dropouts is nearly twice the rate for all U.S. teenagers. And U.S. population projections point to sharp increase in the rate of unemployment for dropouts as the years immediately ahead see a significantly more rapid increase in the labor force, particularly at the younger ages.

By 1970 some 20 million young people between the ages of 14 and 24 are expected to be competing for jobs in the labor market, half again as many as in 1960. Numbers in the 25 and older age group are expected to swell, too.

Those who lack a basic education are likely to find themselves trailing the field when the time comes to look for a job. (14)



## Zoning of Fertile Lands May Be Key To Future of Puerto Rican Farming

Zoning, the system that keeps foundries out of residential areas and suburbia out of the farmlands, may soon be a big factor in the rural Puerto Rican economy.

The rapidly growing economy of the United States' only commonwealth has lifted its per capita income 75 per cent in the past 10 years and factories have sprung up all over its 100- by 35-mile spread.

Housing subdivisions and super-highways threaten the isle's less than two million acres of arable land, cutting into the canebrakes, rendering processing plants inefficient for lack of enough raw cane to keep them operating near full capacity.

Two more decades of industrial growth at the present rate would swallow up nearly all the island's choice farmland.

Puerto Rican farm leaders are heading a movement toward zoning of fertile land for farming. They see it as one way for the island to keep enough caneland to meet its U.S. sugar quota.

The United States will buy up to 1.3 million tons of sugar annually from its Puerto Rican commonwealth. Production in 1965 reached only 900,000 tons, supplying about one-tenth of our sugar imports.

A 1965 amendment to the Puerto Rico Planning Act permits zoning of rural and agricultural areas. The act authorizes buffer zones of farmland to prevent urban sprawl across agricultural areas. It also permits setting aside fertile land along highways for crop production.

Further, the newly established Puerto Rico Land Administration has the green light to set up a land bank. However, lack of funds and the island's urgent need of land for housing have stalled the program.

Once under way, the zoning

movement should be smoothed somewhat by a plan presently in the works to map the entire island by soil type. Mapping of the western half has been completed.

Another Puerto Rican survey found five major areas highly promising for the start of farm zoning. These highly fertile areas, presently in farming, are flat enough for mechanized agriculture and have good irrigation and drainage.

These areas would likely fall into the first of three kinds of farming districts that would protect Puerto Rican agriculture: the exclusive agricultural district. In this district, minimum tracts of, say five acres, might be required. The more productive caneland and other productive farmland would thus be protected from leapfrogging urban-sized lots that have taken over other fertile lands.

Another type of district would permit some residential development. However, lot minimums of from one to five acres would discourage, but not prohibit, residential development for now, pending greater need for future housing.

The third district would be open to transition from rural to urban development. Farms would share the land with nonfarm residences, schools, churches and other urban facilities.

The most fertile lands would go to farming. Smaller-tract districts would be set up on the less fertile farmlands and the transition districts on land least suited to farming. (15)



## Drought Adds to Poverty of Colorado Area; Tourism Possible Financial Cure

What began about 1846 with a generous Mexican land grant to an 11-year-old boy is now a redevelopment area where poverty and poor farmland are prevalent.

Involved is Costilla County at the southern end of the San Luis Valley of Colorado. This area is one of three being studied in Colorado to determine the effects of population loss on rural areas. Costilla County was chosen because of its high rate of population loss and low income. Comparisons are to be made with a county having a high rate of loss and good income and with one having a growing population.

Water is a major problem in Costilla County. The Rio Grande River runs through the upper valley but does not provide water for agriculture. Here residents must depend upon water from creeks rising in the nearby mountains and from wells.

Although parts of the county are very productive where water is available, the area has had a prolonged drought for almost a decade which has dried up irrigation water sources and shut down many of the commercial farms. In addition, many wells in the southern part of the county have dried up, cutting off domestic household water. Most people who remain must haul water for household use.

Population in the county is declining and in 1960 stood at 4,219, down from 6,067 in 1950. Nearly three-fourths of the people are Spanish-American, descendants of the original settlers.

Educational level of persons remaining in the county is low—less than eight years on the average. Those 25 and over showed very little improvement in education over their parents. However, the 16- to 24-year-old children who lived at home were found to have completed a considerably higher



number of grades than their parents.

The number of children born per family is high—an average of five per woman, compared with a state average of less than three children. Yet with a heavy burden of dependent children, the average family income of \$2,375 at the last census was the lowest in the state.

Except for one village, the only unit of government is the county. This does not permit the development of municipal services and facilities. There are no water or sewage systems, paved streets, police or fire departments or other such services.

Such are the dimensions of personal and community poverty in one rural area of the West. One real possibility for an economic development project is that of tourism. Located within the area are many historic buildings and scenic areas. These include Fort Garland and the town of San Luis, which is the oldest settlement in Colorado. (16)

## Local Governments Need Workers In Unskilled as Well as in Skilled Jobs

As the demand for public services mounts, so, by and large, does the public payroll.

This financial corollary applies to the local scene as much as to the national.

State and local government expenditures for these services have been increasing faster than federal expenses and may soon exceed them.

Employment at the state and local level, for example, doubled from 1947 to 1964, going from 3.5 to 7.1 million persons.

Though rural areas—those outside standard metropolitan statistical areas (SMSAs)—tend to have fewer government workers, the proportion may well increase in the future. Rural populations have increasing proportions of persons under 18 and over 65

years of age. These are the population groups that require the greatest number of public services—more schools for the children, more health services and income assistance for the elderly.

Furthermore, federal economic opportunity and community development programs are aimed at providing a higher level of local services as an undergirding for economic development. Such services include better schools, water and sewage systems and highways.

Once they have been built, all such services call for more employees to staff and maintain them.

Often the county government, the county hospital or the larger school districts have more employees than the largest industry in a rural county.

All of which means that local governments represent job opportunities for residents, jobs calling for a variety of training or skills.

Schools, of course, are apt to be one of the biggest employers in local government. But teachers aren't the only school employees. In October 1962, for example, public schools outside the SMSAs employed 1,060,000 persons. About two-thirds were teachers, but the rest were superintendents, clerks, school bus drivers, cooks and other cafeteria workers and custodians.

The local agencies charged with running the highways, police and fire departments, financial offices and utilities also employ large numbers of people. The jobs involved range from such professional work as the engineer to the relatively unskilled truck driver.

Highway departments, for example, hire more equipment operators, truck drivers, laborers and draftsmen than they do engineers with college training.

The rural job seeker should also remember that much of the work available is part-time, suited to the underemployed farmer, the student or the housewife who wants to augment the family in-

come. In fact, almost a fourth of all local government jobs outside SMSAs were part-time jobs in October 1962.

To be sure, many of the job opportunities in rural government agencies will increasingly call for professional training. Even so, there will be a greater number of jobs that demand considerably less than a college degree.

The push to improve public services in rural America will result in a greater number of nurses aides, laboratory technicians and school clerks who can free the time of teachers.

Thus, as residents call for and get better public service, they will also be increasing their community's job opportunities. (17).

## Farm Trends Continuing: Size Up, Number and Acreage Down in 1965

Fewer but larger farms is the continuing trend in U.S. agriculture.

Preliminary data for 1966 indicate we have 3,286,000 farms with an average size of 350 acres. In 1959 these totals stood at 4,105,000 and 288.

The changes in estimated national totals have been much greater for the number of farms than for land in farms. Farm numbers during the period 1959 to 1966 declined 20 per cent, while land in farms decreased only 3 per cent.

Discontinuance of small farming enterprises and merging of larger units with existing farms continue as important influences in the change in farm numbers.

Final estimates by the Crop Reporting Board for 1965 list the number of farms at 3,380,000—a 3 per cent drop from 1964. Total land in farms stood at 1,155 million acres, a decrease of less than 1 per cent from 1964.

Estimates of number of farms and land in farms for 1966 are to a large extent based on extension of previous trends. (18)



# CASE HISTORY OF COMPETITION

*Two communities with the usual array of food stores—how do the stores set their prices? How often do they change them to attract the customer?*

Roadside stand or super-super-market, independent retailer or outlet for a national chain—whatever the size, whatever the business organization, they have at least one thing in common: the need to keep the products moving out and customers coming in.

The retailer does the job by merchandising, the art of increasing sales. And variable pricing is one of the chain and affiliate food retailer's most important stratagems in the day-to-day competition for customer favor.

Variable price merchandising is not simply a matter of price cutting or merely the normal response of prices to changes in cost and demand for a given product.

For one thing, it calls for the systematic *raising* as well as lowering of prices. Prices can be varied in such a way that both the average price of any single item

and the average price level of all items are the same over time. The result would be just the same if no price change had taken place at all—no change in demand or cost, no necessary net gain for any individual item.

What, then, does the store get out of the practice? By varying prices the store calls attention to its wares and provides itself with a distinct market character. This in turn helps draw customers and achieves a total gain in net sales.

How does it work? A recent study by the Economic Research Service attempts to answer the question by documenting practices in two market areas: one a city of about 100,000, called Central City in the study, the other an adjacent rural community, referred to as County Plaza.

The overall finding of the survey is that variety in price pat-

terns for the stores was more discernible than any general trend.

*Price changes.* Of all the stores in the survey, the chains and the affiliated stores made far the largest percentage of possible price changes. However, analysis of the data underscored the point that type of store ownership does not alone explain the difference in frequency of price change; factors beyond the scope of the study also were at work.

When the affiliates changed prices, the degree of change—up and down—was apt to be greater than it was for the chains. Or to put it in terms of the statistics, the chains were less apt than the affiliates to register price changes which exceeded the combined median price increase or decrease for chains and affiliates.

The patterns, however, were only loosely typical of stores.





Analysis of the other ownership groups turned up much the same finding—a general similarity by type of ownership, but many substantial differences from store to store.

*Price change by product.* Although the chains and affiliates tended to change overall prices at about the same rate, they followed significantly different methods of pricing for particular products.

For more than half the products in the dairy, poultry, fresh fruit and vegetable and miscellaneous groups of products, the chains made more price changes than the affiliates. Chains also changed their prices more often than all unaffiliates for every meat and fish product in the sample, while the affiliates changed their prices on 90 per cent of such products more often than the independents.

As for the direction of change, slightly more than half made by the chains and affiliates were price increases, presumably because of the slight upward trend in a few of the prices over the period studied.

When the researchers compared pricing patterns by location of stores, they came up with some negative findings with positive interest. What they found was *no* significant relation between the income and education levels of neighborhoods and the stores that served them. Nor was there any

significant difference between pricing patterns for stores in Central City compared with stores in County Plaza.

The findings, according to the study, do not rule out the possible influence of location in respect to other stores or to size of the store. But such influences were too small to appear in the aggregate comparisons.

*Change in the unit of sale.* A retailer juggles the number of units sold for a given price for a variety of reasons. Switching an item from “two for 33 cents” to “18 cents each,” for example, may obscure a price increase. It works the other way, too. Changing from “18 cents each” to “two for 33 cents” gives the store a 3-cent reduction to feature instead of a 1½-cent decrease.

The study found that such price-unit changes were much more common among chain stores than among affiliates, and more common among both chains and affiliates than among independents.

These differences appeared less often for meat items, commonly posted on a per-pound basis in all stores, and flour and bakery items which are rarely priced in multiples.

The practice of changing the unit along with the price also prevailed more often for public brands than private brands. Some 29 per cent of all price changes

for public brand items were price-unit changes; about 21 per cent of the private brand changes were. And the difference turned up mostly in price decreases.

*Advertising.* The pricing data covered four chains and two affiliate organizations. Three of the chains advertised more than once a week. Thus, the number of advertised listings for chain stores was much larger than for the affiliated stores, both in total and for most individual items.

But when allowance is made for the difference in the absolute number of advertisements, little difference appeared in the character of advertising between the two groups of stores.

There were, however, some important differences among chains in the number of features sponsored by the chains and the extent to which the features were division-wide in scope. The chains commonly featured the same item at the same price in two communities. In fact, the great majority of items were sometimes featured at the same price in two communities. A substantial number of items were always featured at the same price in two communities, if they were featured at all. However, the items were rarely featured in every sample community of each chain's operating division.

But despite the similarities in prices, the data suggest that individual stores in a chain are far

**PROFILE OF THE MARKET:** Central City offers its approximately 100,000 residents some 66 food stores for their shopping; adjacent County Plaza

provides 22. The researchers selected a sample of the stores for an exhaustive study of the pricing methods practiced during 1962 and 1964.

Ownership type	Central City		County Plaza	
	Total <sup>1</sup>	Sample	Total	Sample
Corporate chains				
Stores	23	7	8	2
Firms	5	3	4	2
Affiliates				
Stores	14	7	2	1
Associations	3	3	1	1
Unaffiliated				
Stores	29	13	12	2
Total stores	66	27	22	5

<sup>1</sup> Includes only stores, firms and associations meeting study requirements for store to have a payroll, posted prices and at least \$100,000 in sales per year.



from uniform in their selection of items and prices to be advertised or featured.

*Store-to-store changes.* With everyone's prices a matter of common knowledge, it would be easy enough for one food store to emerge as price leader, for others to become followers. And though the nature of competition in the food business makes this situation possible, no such clear-cut relations turned up in the 344 paired comparisons made during the study.

Rather, each store initiated some price changes and was followed by other stores. In turn, the same store followed some price changes initiated by competitors. This was true regardless of the type of item priced, the combination of items or the ownership category for the stores.

Though the figures that emerged in this portion of the study suggested statistically significant relations, they were not strong enough to indicate a textbook model of leader-follower. And these numerically weak relations were distributed fairly evenly among stores within each grouping.

Thus, while underlining the sensitivity of food stores to price changes within a given market area, the study doesn't indicate the existence of a textbook model of price leader-price follower.

In such a situation there is no way to be sure that competition will necessarily produce either marketwide uniform prices or cause all retail establishments of the same type to respond in the same way.

*Prices: wholesale to retail.* The buying price and the selling price for a given item, according to one concept of the marketing system, should and do move together. A higher or lower buying price is passed forward to the consumer; a change in demand is passed backward to the producer.

But a retail operation such as a food store, handling thousands

of different items, could well short-circuit the connection; no direct and immediate association of buying and selling prices would necessarily be observed. Nor was one found in the survey tabulations.

The weak cost-price relation found in the study reinforces the belief that the store manager has a wide latitude of choice in retail pricing, a range of discretion necessary to the entire practice of variable price merchandising.

*The application.* As is true of any survey, the findings apply directly only to the sample from which they came. Though the data were extensive, as such things go, they were only a portion of the total universe of prices and price related variables.

But within these limits, the study has more general application.

Overall, the study suggests that variable price merchandising, as a type of market competition, is far different from the concept of a low-and-uniform price ascribed to a situation of perfect competition. The survey, on the contrary, suggests a clearly "imperfect" situation, if "imperfect" means something other than the outcome of pure competition.

However, the stores neither displayed the characteristics associated with a tight-knit monopoly nor even the clear and consistent interactions of an oligopoly. Thus, it is still an open question whether the situation is "imperfect" in the sense of providing fewer benefits to the customer than might otherwise be available. (19).

(NOTE: This article is based on "Price Merchandising in Food Retailing: A Case Study," by P. E. Nelson and L. E. Preston; to be published in May by The Institute of Business and Economic Research, 460 Stephens Hall, University of California, Berkeley, California, 94720 (IBER Special Publications Series, Price: \$2).

## Controlled Atmosphere in Storage Extends Marketing Life of Apples

Cut back their oxygen and extend the life of apples. The longer storage can shine up sales, too.

The trick is controlled atmosphere (CA) storage. Normal oxygen content is reduced from 21 to 2 or 3 per cent, temperature is held between 30 and 38 degrees, humidity at 95 per cent. It depends somewhat on the variety.

All fresh fruits continue to respire after harvest—that is, they take in oxygen and give off carbon dioxide. The usual cold storage methods can greatly retard the ripening process after harvest. But the ripening period may be extended even further under CA.

CA has worked best with McIntosh apples, allowing safe storage for seven to eight months at 38 degrees Fahrenheit. When held below 38 degrees in regular storage to retard ripening, the McIntosh, unlike other varieties, are susceptible to breakdown.

CA storage involves higher costs than regular cold storage because of increased construction and operating charges. Practically air-tight rooms and special equipment are required to maintain the desired atmosphere.

The need for extra care, in fact, stretches all the way back to the orchard. Fruit must be picked at the proper stage of maturity and with the desired color.

To give consumers the best possible fruit, apples should be kept under refrigeration as long as possible—including on the retailer's display counter.

The number of apples held in CA storage increases yearly. In the fall of 1963, apple houses in the United States had a CA capacity of more than 11 million bushels. This figure is now estimated to be slightly over 13 million bushels. More than a fifth of the apples in cold storage on October 31, 1965 were in CA storage. (23)



*ERS each year publishes a review of world agricultural production, with supply and demand prospects for the coming year. A summary of The 1966 World Agricultural Situation*

*appeared in the January issue. Five supplements report in more detail the agricultural situation by region and country. Condensations of these regional reports follow.*



## WESTERN EUROPE

A good year but not a great one. This was Western Europe's situation in 1965, both for the general economy and for agriculture.

The economic boom of the last decade seemed to level off last year. Estimates put the combined growth rate in gross domestic product of Western Europe at 3.4 per cent, compared with 5.5 per cent in 1964. Growth rates in most West European countries declined in 1965 from the previous year and in France and the United Kingdom were about half of those in 1964.

Wages continued to rise and inflation remained a serious problem. By the end of September 1965 the cost-of-living index was up 2 to 10 per cent over a year earlier.

On the plus side, consumer demand for goods and services remained strong in Western Europe. Combined retail sales in seven countries for the year ended last September were 5 per cent above the year before. Foreign exchange holdings were up 2.4 per cent.

Turning to agriculture, ERS international specialists estimate that the index of total farm output for Western Europe climbed to 117 (1957-59=100), 2 points above 1964.

But it was a wet, cool growing season north of the Alps. Wheat output set a new record in 1965, but quality was below normal due to poor harvesting weather.

Feed grain production dropped

slightly in 1965. Barley production increased, but output of oats continued a long-term decline.

Production of olive oil, milk and especially pork was above that of 1964, but the potato and sugar beet harvests were off. Beef and veal output declined, too. Cotton showed little change from the previous year's harvest.

With this production picture for 1965, ERS specialists expect total U.S. farm exports to Western Europe in 1966 to exceed 1965's.

The United States should sell somewhat more wheat this year than last because of the poor quality of the record European crop.

More of the European wheat, in turn, may be used for livestock

feed. However, our feed grain markets shouldn't be affected since the continent's livestock industry is growing so rapidly. West Germany, Italy and the Netherlands should remain strong markets for U.S. feed grains this year. Although still large, our U.K. market may decline a bit, compared with 1965, due to the big increase in the British barley crop.

We should sell more rice to Western Europe this year.

Bigger sales are likewise seen for U.S. oilseeds and products, tobacco and citrus and deciduous fruits.

U.S. cotton sales to Western Europe will likely be down, due to record world output and the formidable competition from man-made fibers. Our shipments of lard, tallow and greases shouldn't run above last year's levels, because of Europe's own large hog slaughter and our reduced ones in 1965 and 1966. (24)



## EASTERN EUROPE

Farm output in 1965 down sharply from the exceptionally high level of 1964. Grain imports from the West likely to continue, possibly grow, in 1966.

This briefly sums up last year's agricultural situation and this year's outlook for the USSR and Eastern Europe.

Actually, 1965 started out quite well for the region's producers. With the weather seemingly on their side, farmers in Hungary, Bulgaria and Rumania harvested record winter wheat crops. In the

USSR, winter wheat and rye yields were well above both 1963 and 1964 levels.

But as the season progressed, the weather turned malevolent. Too much rain in some parts of the region, too little in others took their toll on spring sown crops.

Drought—much like that of 1963—seriously damaged the spring grain crop in the USSR. Especially hard hit was the important wheat crop in the New Lands east of the Urals. Output and yields of other important



crops used for livestock feeds—such as sugar beets and potatoes—were also down from 1964's record levels.

The Soviet cotton crop, however, defied the weather—setting the third production record in as many years. In large part, cotton's success reflects the effects of a price increase and high fertilization rates on irrigated acreage.

The other East European countries in the southern tier—Rumania, Bulgaria and Yugoslavia—also suffered from extremely dry weather during the summer and fall of 1965. Output and yields of feed grains, fruits and vegetables dropped off considerably from 1964 levels.

Too much rain, however, plagued farmers in the north. Output in 1965 of spring sown feed grains, oilseeds, potatoes, fruits and vegetables were all down from 1964. Czech agriculture suffered the most from adverse weather, total crop output was down 9 per cent from 1964 which was *not* an especially good year. Potato production last year dipped to its lowest point in recent Czech history.

Despite the shortage of livestock feeds (grains, potatoes and sugar beets) in 1965, the region did manage to boost production of livestock substantially. Every country except Hungary maintained or increased livestock numbers. And considerably larger supplies of meat, milk and eggs are expected in 1965/66.

The general outlook for 1966 is that with lower feed supplies and more livestock, the USSR and other East European countries likely will continue purchasing grain from the West. The USSR has already purchased more than 9 million tons of wheat from the West for delivery during 1965/66. Russia will probably end up a heavy net grain importer at the end of 1965/66, even though it is still expected to honor grain export commitments to Eastern Europe.

The 1966 outlook for livestock production in Eastern Europe and the USSR could be hurt by the spread of foot-and-mouth disease. Its appearance was noted in many countries of the region in late 1965 and it was especially widespread in the USSR.

Significant in the outlook for 1966 and coming years are recent

changes in the region's agricultural policies. For most countries, 1965 was the last year of a major plan period. And many of the governments have announced new goals for 1966 to 1970.

Increasing grain production stands out as the No. 1 agricultural objective of most of the new plans. (25)



## AFRICA

Despite impressive gains, agricultural output has been hard-put to keep abreast of population growth in northern Africa.

The population in northern Africa (limited to Algeria, Morocco, Tunisia, Libya, United Arab Republic and the Sudan) is growing at 3 per cent or more a year. It's slightly faster than in 1960-63, when the European exodus from Algeria held the growth rate in check.

All countries in northern Africa, with the exception of Libya, managed to expand agricultural output in 1965 or at least succeeded in holding their own.

Cotton production in 1965—the region's leading commercial crop—showed an increase to 706,000 metric tons, a gain of 7 per cent over 1964. But the greatest gains were reported for wheat, up about 15 per cent, and rice, up 13 per cent. Production of olive oil amounted to only two-thirds of last year's output. The region's livestock production continues to lag far below its potential.

With better than average crops, northern Africa will have larger quantities of hard wheat, cotton, rice, oilseeds and wine for export in the coming months.

To a large extent, the long-range outlook for the area's agricultural exports depends on its association with the European Common Market. Thus far, no country in northern Africa has joined.

*Southern Africa.* Most of the Republic of South Africa was hit last year by the worst drought since the 1930s. Ranges for beef cattle and sheep have not had enough rain for three or four years and meat may be scarce in the Republic in 1966.

Corn and wheat, too, suffered from a shortage of rain in 1965.

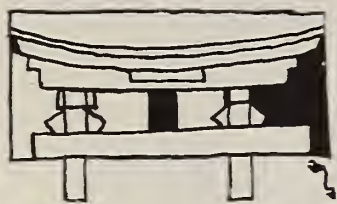
Drought conditions also prevailed in major farm areas of Kenya and Tanzania during the past year. The result has been a drop in output for both subsistence crops and some of the major cash crops for export.

Though cocoa is not generally considered to be in world surplus, the record 1964/65 world crop of 1,514,000 metric tons forced world prices to their lowest levels since 1946. However, prices began to strengthen by the end of 1965 and early this year.

The African coffee crop is also headed for marketing problems. The 1965/66 crop south of the Sahara will be the largest on record if the estimate of 17,894,000 bags (1,074,000 metric tons) is fulfilled. The crop would be 11 per cent larger than in 1964.

Largest U.S. exports to Africa south of the Sahara were rice and wheat and wheat flour. The Republic of South Africa, at \$28.8 million (mainly rice), and the Congo (Leopoldville) at \$20.9 million, were the United States' largest country markets in the region for fiscal year 1965. (26)





## FAR EAST

No measurable gain over the previous year is the 1965 report on total farm output in the Far East.

However, population grew as usual so there was an actual decline, compared with 1964, in output per person. In fact, after an upswing in the late 1950s, per capita production hasn't improved since 1960.

As defined by ERS specialists, the Far East doesn't include Communist Asia or Oceania, that is, Australia and New Zealand.

With the people of the Far East so dependent on rice as the dietary staple, the shortfall in the rice crop, nearly 2.4 per cent below 1964, was the single most important change in the region's farm scene last year. Also off was production of sweet potatoes, peanuts and copra.

Other major crops had a better year. Wheat and pulses were up sharply, as were sugarcane and sugar beets. Setting new records were tobacco, tea, rubber, fruits and vegetables.

In India critical food shortages developed late last year as prolonged drought damaged fall-harvested crops. With drought continuing, prospects for the spring harvest this year are little better.

India's imports of cereals, mostly wheat and mostly supplied under U.S. aid programs, jumped to 7 million tons last year, double the quantity imported as recently as 1962. Outlook for 1966? Imports half again as large as 1965 if minimum requirements as outlined by the Indian government are to be met.

In contrast to India, Pakistan's agriculture had a pretty good year. Wheat output, at 4.6 million metric tons, reached an all-time high, due primarily to better yields.

Among other nations that raised total farm production in 1965, compared with 1964, were Thailand, Taiwan, Indonesia, Cambodia, Malaysia and Burma. South Korea and South Vietnam failed to reach 1964 output levels in 1965.

Japan's disappointing rice crop last year was a setback for the government. As the keystone of Japanese agriculture, rice production is encouraged by high price supports which get higher every year.

Japan contracted to import 874,000 tons of rice in 1965, double 1964 imports. This larger quantity will probably be needed again in 1966. And much of it will likely come from the United States.

Turning to Communist China, ERS specialists note that Peking had set the farm output goal for 1965 at 5 per cent above 1964. The best available information indicates that the goal wasn't met but that China did equal or



With the weather on their side for a change, farmers succeeded in increasing total production in the three main regions of the Western Hemisphere.

Compared with 1964, agricultural output was up 9.2 per cent in Canada, 3.6 per cent in the United States, and 7.9 per cent in Latin America.

Good weather in Canada's important prairie provinces, for example, more than offset the effects of drought in the east. Though livestock output increased some-

what, a gain of 12 per cent for crop production accounted for most of the Canadian increase.

With seasons the reverse of the Northern Hemisphere, Oceania is just now completing its harvest. But sharp contrasts are already evident.

Australia, hit by widespread drought, harvested the smallest wheat crop since 1961. Also off is production of barley, oats, corn, sorghum, flaxseed and tobacco. Unaffected by the dry weather, both the rice and cotton crops are likely to set new records.

New Zealand is having a good year for most major commodities. A new record is expected in dairy production. The same holds true for wool output. And meat production is up, due mostly to increases in lamb and mutton.

The value of Australia's agricultural exports in 1964/65 has been estimated at \$2.1 billion or about 12 per cent below the high level of \$2.4 billion for 1963/64.

Much of the decrease in earnings reflected the lower price for sugar as well as both volume and price declines for wool. Export earnings from meats and dairy products increased, but overall, agriculture's share in the total value of exports dropped in 1964/65. (27)

## WESTERN HEMISPHERE

what, a gain of 12 per cent for crop production accounted for most of the Canadian increase.

Much the same situation prevailed in the U.S. Crop output was up 6 per cent, more than enough to counteract the 1 per cent drop in livestock production.

Wheat production for the Hemisphere, estimated at 66.0 million tons for 1965/66, is only slightly below the year earlier level but almost 26 per cent above the average for 1955/56 to 1959/60. However, the exceptionally good crops



north of the equator were offset by sharp reductions in the Argentine crop and declines in Brazil, Uruguay and Chile.

Rice production continued at a high level for the Hemisphere, with output estimated at about 12.5 million tons for 1965/66. The figure is only slightly below last year's record output. U.S. output of 3.5 million tons for 1965/66 set a new record.

The indications are for record production of coarse grains for the Hemisphere in 1965/66. The grains include corn, sorghum, oats, barley, rye and, in Canada, mixed grains. The estimate of 196.2 million tons is one-fourth greater than the 1955/56 to 1959/60 average. Nearly all countries registered gains in output, with a record crop in the U.S. and a near record for Canada.

For the Hemisphere as a whole, estimated production increases for grains, sugar, vegetables and fruits, oilseeds, coffee and cocoa beans more than offset declines in livestock products, vegetable fibers and tobacco.

High levels of industrial output, with increased agricultural production, resulted in increased per capita gross national product

for most countries.

Hemisphere agricultural exports were estimated to be up 10 per cent to \$13.8 billion for 1964; imports increased 3 per cent to \$6.7 billion. In 1965, both exports and imports likely decreased slightly.

U.S. agricultural exports of \$6.2 billion in 1965 were under the record of 1964; imports for 1965 of \$4.1 billion were about the same as a year earlier. U.S. agricultural exports may increase somewhat this year with little change in imports.

Highlights for Latin American agriculture for 1965 are:

*The Caribbean.* Total agricultural output of the five Caribbean countries increased 6.7 per cent for a per capita gain of 3.9 per cent. Large gains in Cuba and significant increases in other countries more than offset a slight decline for the Dominican Republic.

Food production gains were even more impressive. Total food output increased 7.8 per cent. On a per capita basis, this amounted to a gain of 5.1 per cent.

*Mexico.* With only minor gains in total output from Mexican farms, per capita output dropped

across the board. Mexican output increased 1.5 per cent for all agricultural products, 2.2 per cent for food, 1.4 per cent for crops and 1.5 per cent for livestock.

*Central America.* A large gain in production for Honduras, with lesser gains in Guatemala, El Salvador, Costa Rica and Panama, more than offset the decline in Nicaraguan output. Total production for the region increased 3.6 per cent with no change in per capita output.

Because of a falling off in livestock production, total food output registered a 1.0 per cent decline per capita. Crop output was up 0.8 per cent per capita.

*South America.* Brazilian output led all other nations in the region for 1965 gains. Total production in Brazil was up 22.8 per cent, or 17.0 per cent per capita.

For the entire region, production increased 9.9 per cent, a 7.4 per cent gain in per capita output.

Production was up in all South American countries except Peru, Chile, Argentina and Uruguay, though per capita production declined in Colombia.

Food output alone increased 4.2 per cent; 1.0 per cent per capita. (28)

### *Foreign Spotlight*

EUROPEAN ECONOMIC COMMUNITY. The first meetings of the EEC Council of Ministers since France walked out last June were held in January. Though the June 1965 disagreement was ostensibly over financial matters, France also objected to Council decisions reached by majority rather than unanimous voting and to increased policy making by the EEC Commission—which is technically supposed to propose policy, not make it.

The most important outcome of January's meetings appears to be the agreement of France to return to active participation in EEC organizations. The question of majority voting was discussed but not resolved. The ministers did agree that on important questions subject to a

majority vote, a reasonable time should be permitted while an attempt is made to reach a solution acceptable to all Community members. Thus, it appears agricultural and trade decisions in the Council will still be subject to unanimous vote.

During the January Council sessions, France also proposed a number of points to curb the decision-making power of the EEC Commission. Those which the ministers accepted were that the Commission should: contact member governments before accepting proposals of major importance; refrain from making public announcements of new proposals or other official acts until the member states have been properly informed; and cooperate more closely with the Council of Ministers on EEC finances and matters concerning nonmember countries and international organizations. (29)



**PER CAPITA USE OF PROCESSED FRUITS  
AND VEGETABLES FORGES AHEAD OF FRESH**

Year	Fruits		Vegetables		Total
	Fresh	Processed <sup>1</sup>	Fresh	Processed <sup>1</sup>	All forms
	Pounds		Pounds		Pounds
1929-33	125	36	92	45	298
1934-38	129	44	95	50	318
1939-43	136	57	98	67	358
1944-48	134	76	107	83	400
1949-53	111	85	95	86	377
1954-58	94	100	92	94	380
1959-63	85	101	95	101	382
1964 <sup>2</sup>	79	90	87	106	362

<sup>1</sup> Includes canned, frozen and dried produce and products. <sup>2</sup> Preliminary.

## Less Fresh Produce, More Processed Items Find Their Way to U.S. Homes

"Mommy, do peas really grow in cans?"

Don't laugh. Give many a modern youngster a handful of peas in their pods and he'd never recognize them. Why? Because his mother is buying and bringing home more and more processed fruits and vegetables, less and less fresh produce for her family.

A recent ERS study of long-term trends in the fruit and vegetable industries illustrates the dramatic shift which has taken place in per capita consumption of fresh and processed produce in the past three and a half decades.

Back in 1930 just about 78 per cent of the fruit each American consumed was purchased fresh; processed fruits and juices made up only 22 per cent of all the fruit he ate. But by 1964 processed fruits and juices—either canned, frozen or dried—made up slightly more than half of total per capita fruit consumption.

It's the same story for vegetables. On a fresh weight at retail basis, vegetables bought fresh comprised about two-thirds of total per capita use in 1930; processed items, only a third. In 1964 total per capita consumption was split almost 50-50 between the two. For a few items used mainly in the fresh form—such as lettuce

and escarole—per capita consumption has risen. But for many items available in both fresh and processed form, fresh use has declined.

Why the big shift from fresh to processed products? Convenience is one answer. Almost all processed fruits and vegetables offer some built-in maid services—for example, spinach without sand and peas without pods. And as consumer disposable incomes have risen, more homemakers can afford to spend a few extra pen-

nies on foods which save time and work.

In some cases, consumers simply prefer the taste of the processed product. Of the myriad new processed items which have been introduced on the market, some appealed to consumers' palates more than did the fresh form. Then too, canned, frozen and dried fruits and vegetables are available year-round and are fairly standard in quality.

Cost is another reason for the changeover. A close-up of relative prices of fresh and processed products during 1953-64 showed that retail prices for fresh produce climbed 33 per cent, compared with an increase of only 12 per cent for processed items. Actually the farm price of fruits and vegetables rose only 2 per cent during the period. But the marketing bill for fresh produce increased three times as fast as that for processed products. And some convenience foods—frozen orange juice and canned asparagus, for example—actually ended up costing less than their fresh counterparts. (30)



**SEE? SI:** For our Spanish-speaking citizens the Department of Agriculture has issued a quick credit guide, pocket-size. It shows how to figure what interest you actually pay when you borrow money or buy on time. Single copies are free from the Department's Office of Information. Copies of this quick credit calculator come in English, too. (31)



**THE WORLD AGRICULTURAL SITUATION: REVIEW OF 1965 AND OUTLOOK FOR 1966.** Foreign Regional Analysis Division. FAER-28.

The world's farmlands produced about 1.5 per cent more than they did in 1964, a drop from the pace of the past two years.

Production in the Western Hemisphere and in Western Europe rose faster than population, but in other parts of the world, the reverse was true.

This booklet of highlights presents the world agricultural situation in general as well as by commodities and by regions. It contains maps showing the various world geographic divisions and tables of commodity production, consumption and trade. (See January 1966 Farm Index.)

**ECONOMIES ASSOCIATED WITH SIZE, FRESNO COUNTY COTTON FARMS.** C. V. Moore, Farm Production Economics Division, in cooperation with University of California, Davis. Giannini Foundation Res. Rpt. 285.

Estimated costs are presented as related to farm size for two general soil types and the crops which can be grown in them. Types of soils are (1) light sandy and (2) heavy clay and clay loam. Farmers can use the results of this report in making long-term plans in regard to the use of machinery, labor and land.

**PRODUCTION ADJUSTMENTS—A CASE STUDY OF SIX SOUTH CENTRAL NORTH DAKOTA FARMS.** P. E. Tix and others, North Dakota Agricultural Experiment Station, in cooperation with Farm Production Economics Division. N. Dak. Agr. Expt. Sta. Bul. 456.

Linear programming was used to analyze six typical farms ranging in size from 480 to 1,240 acres. Production alternatives were based on crops and livestock enterprises of the area studied. Specific adjustments which would improve income on each farm are listed.



## recent publications

*The publications listed here are issued by the Economic Research Service and cooperatively by the state universities and colleges. Unless otherwise noted, reports listed here and under Sources are published by ERS. Single copies are available free from The Farm Index, OMS, U.S. Department of Agriculture, Washington, D.C. 20250. State publications (descriptions below include name of experiment station or university after title) may be obtained only by writing to the issuing agencies of the respective states.*

**THE SWEETENER MARKET—TRENDS AND PROSPECTS.** F. D. Gray, Economic and Statistical Analysis Division. ERS-267.

Sugar is the primary sweetener in the United States. Cane sugar accounts for 70 per cent of U.S. consumption; beet sugar makes up the other 30 per cent.

This report traces the trends of the nation's sweet tooth from 1950 to 1964 in consumption of caloric and noncaloric sweeteners. Prices are plotted, past, present and future, and consumption is reviewed as well as projected.

**GROWTH IN U.S. SOYBEAN PROCESSING CAPACITY.** G. W. Kromer, Economic and Statistical Analysis Division. ERS-269.

The rate of expansion of soybean processing mills has slowed

considerably in recent years. But cottonseed mills are crushing soybeans during part of the year, so processing capacity continues an upward trend that started in the early 1950s.

This report deals with plant operating capacity, annual crush per mill, proportion of the soybean crop crushed and amounts of soybean oil exported and used domestically.

**THE ADEQUATE FAMILY FARM—MAINSTAY OF THE FARM ECONOMY.** R. Nikolitch, Farm Production Economics Division. ERS-247.

Progress in recent years has not changed two basic structural characteristics of American agriculture. This report shows how the traditional dominance of family farms continues to be as notable as ever. (See November 1965 Farm Index.)

**NOTES ON THE AGRICULTURAL ECONOMIES OF DEPENDENT TERRITORIES IN THE WESTERN HEMISPHERE AND PUERTO RICO.** A. G. Sanderson, Foreign Regional Analysis Division. ERS-For. 145.

Agriculture predominates in the dependent countries of the Western Hemisphere employing an estimated 36 per cent of the labor force among a population of 5.3 million in 1963.

These notes outline the population and land use, agricultural production, consumption and self-sufficiency, agricultural and trade policies, trade and outlook for each of these countries. (See November 1965 Farm Index.)

**MARKETING FARM PRODUCTS—RECENT DEVELOPMENTS AND OUTLOOK.** Marketing Economics Division. ERS-263.

As in other economic activities, there has been widespread change in marketing of farm products in recent years.

This report traces advances in marketing services and resources, assembling and wholesaling, transportation, processing and distribution of farm products.



**THE LAND UTILIZATION PROGRAM, 1934 TO 1964.** H. H. Wooten, Resource Development Economics Division. AER-85.

This report summarizes the government's programs begun in the depression days dealing with submarginal farmland. The origin and development of the programs are described. Case studies of 12 projects show the before and after usage of poor farmland.

**FOOD COSTS.** Market Structure and Costs Branch, Marketing Economics Division. Misc. Pub. 856.

Recent increases in marketing charges have kept food prices from declining with prices farmers receive for their products. Who gets the money and how much food a dollar buys today in comparison with previous years are shown in this pamphlet on retail prices, farm prices and marketing spreads.

**THE AGRICULTURAL ECONOMY OF LEBANON.** R. E. Kampe, Foreign Regional Analysis Division. ERS-For. 138.

Lebanon is a net importer of agricultural commodities. Most of Lebanon's exports go to neighboring Arab countries. Crops, agricultural problems, climates and export-import trade are dis-

cussed in this report. (See September 1965 Farm Index.)

**DAIRY STATISTICS THROUGH 1960.** C. J. Davis, Economic and Statistical Analysis Division. Statis. Bul. 303.

This bulletin, presented in tabular form, is designed to help farmers, agricultural agents, research workers and others in the dairy industry in interpreting current changes and in appraising future prospects in the light of past experience. It brings together a wide collection of economic statistics relating to the dairy industry.

**IMPLICATIONS OF SHIFTING THE U.S. SOYBEAN MARKETING YEAR TO SEPTEMBER 1.** G. W. Kromer, Economic and Statistical Analysis Division. ERS-256.

The 1965/66 and successive marketing years for soybeans will begin September 1 instead of October 1, as in the past. This shift will enable more accurate accounting of old-crop soybean usage prior to new-crop harvesting and furnish a more accurate benchmark from which to calculate supply for the coming year.

**INTRODUCTION OF SUPPLEMENTAL IRRIGATION WATER.** R. L. Anderson, Resource Development Eco-

nomics Division, and L. M. Hartman, Colorado Agricultural Experiment Station, Fort Collins. Colo. Agr. Expt. Sta. Tech. Bul. 76.

This report attempts to show the changes farmers made on their farms in response to supplemental irrigation water supplies obtained from the Colorado-Big Thompson Trans-Mountain Water Diversion Project. Generally, farms were enlarged somewhat and farmers brought more land under irrigation. Yield increases were reported on all crops grown. (See December 1965 Farm Index.)

**THEORY AND PROCEDURES FOR STUDYING ECONOMIES OF SIZE ON IRRIGATED COTTON FARMS OF THE TEXAS HIGH PLAINS.** J. P. Madden, Farm Production Economics Division, and B. Davis, Texas A & M University, College Station. Tex. Agr. Expt. Sta. MP-780.

This report contains the technical material in support of Research Bulletin 1037, "Economies of Size on Irrigated Cotton Farms of the Texas High Plains." Among the subjects dealt with in the report are the theoretical framework underlying the analysis; assumptions and procedures used and data, budgets and tableau developed for the analysis.

*Numbers in parentheses at end of stories refer to sources listed below:*

1. R. W. Strohbehn, Resource Productivity and Income Distribution With Implications for Tenure Arrangements, Ill. Agr. Expt. Sta. (M\*); 2. Farm Real Estate Taxes, RET-5 (P); 3. Farm Mortgage Lending, FML-15 (P); 4. G. C. Jones, P. L. Strickland and E. J. Partenhimer, Minimum Requirements for a \$5,000 Farm Income, Wiregrass Area (Lower Coastal Plains) of Alabama, Ala. Agr. Expt. Sta., AE-6 (P\*); 5. E. C. Hunter, Regional Changes in Cattle Numbers and Cattle Feeding (S); 6. H. G. Sitler, Costs of Selected Sizes and Types of Farm Machinery on Colorado Wheat Farms, Colo. Agr. Expt. Sta. Unnumb. (P\*); 7. Livestock and Meat Situation, LMS-147 (P); 8. W. D. Rasmussen (SM); 9. Farm Production Economics Division, Effects of Changes in Grazing Fees and Permitted Use of Public Rangelands on Income of Western Livestock Ranches, ERS-248 (P); 10. G. W. Campbell, W. W. Pawson and A. G. Nelson, Sugar Beets: Estimated Costs and Returns, Ariz. Agr. Expt. Sta. Unnumb. (P\*); 11. L. G. Tweeten, A. W. Reichardt and W. F. Lagrone, Profitable Plans for Farms in the Major Bottomlands of South Central and East Central Oklahoma, Okla. Agr. Expt. Sta. Bul. B-641 (P\*); 12. W. W. Bauder and J. Doerflinger (SM); 13. J. D. Cowhig and C. L. Beale (SM); 14. A. R. Bird, Resource Development—A Framework for Action (S); 15. E. D. Solberg, Agricultural Zoning of Fertile Soils Can Protect Puerto Rico's Agriculture, Its Related Business, and Employment (S); 16. W. H. Andrews, Family Compo-

sition and Characteristics of Economically Deprived Cross Cultural Rocky Mountain Area (M\*); 17. C. J. Hein, Public Employment as a Source of Income in Rural Areas, Agricultural Finance Review, August, 1965 (P); 18. Statistical Reporting Service, Number of Farms and Land in Farms, SpSy 3 (1-66) (P); 19. P. E. Nelson and L. E. Preton, Price Merchandising in Food Retailing: A Case Study (M); 20. J. Layng (SM); 21. Rice Situation, RS-10 (P); 23. B. H. Pubols, "Controlled Atmosphere Storage of Apples," Fruit Situation, TFS-158 (P); 24. Foreign Regional Analysis Division, 1965 Western Europe Agricultural Situation, ERS-For. 114 (P); 25. Foreign Regional Analysis Division, 1965 Eastern Europe Agricultural Situation, ERS-For. 115 (P); 26. Foreign Regional Analysis Division, 1965 Africa and West Asia Agricultural Situation (M); 27. Foreign Regional Analysis Division, 1965 Far East, China, and Oceania Agricultural Situation, ERS-For. 116 (P); 28. Foreign Regional Analysis Division, 1965 Western Hemisphere Agricultural Situation (M); 29. R. E. Friend (SM); 30. Marketing Economics Division, Marketing Fruits and Vegetables—Past, Present and Prospects (M); 31. Office of Information (SM).

*Speech (S); published report (P); unpublished manuscript (M); special material (SM); \*State publications may be obtained only by writing to the experiment station or university cited.*



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### Deficit Drops

Our 1965 balance of payments deficit shrank to less than half that of 1964. On the books, last year's overall deficit amounted to only \$1.3 billion, compared with \$2.8 billion in 1964.

The lower deficit was largely due to the cooperation of banks and other businesses with the President's voluntary program to curtail capital outflows.

Foreign assets held by U.S. banks in 1965 increased by only \$150 million, in sharp contrast to the \$2.5 billion rise in 1964. And though final figures aren't yet available, the direct investment outflow is expected to be below \$3.4 billion in 1965.

However, last year's merchandise trade balance—our surplus of exports over imports—fell to \$4.8 billion from 1964's \$6.7 billion. Total U.S. exports rose by only 4 per cent in 1965 while imports climbed some 15 per cent. The 1965 agricultural trade balance remained virtually unchanged from 1964 at slightly over \$2 billion.

Hopefully, 1966 could be the year during which the U.S. reaches a desirable balance of payments position—for practical purposes defined as any point between a deficit or surplus of \$250 million.

But there are two big "imponderables" in this year's balance of payments picture: (1) rising dollar outlays for military and foreign aid in Vietnam and (2) the indirect impact of Vietnam in increasing U.S. prices because of stepped up demand. A sharp rise in U.S. prices could weaken our export prospects. (20)

# THE FARM INDEX

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